REMARKS

Claims 2-15 are currently pending in this application, as amended. By this amendment, claims 2, 12, 13 and 14 have been amended. No new matter has been introduced into the application by these amendments.

In the Action, the drawings were objected to under 37 C.F.R. §1.83(a) for failing to show every feature of the invention specified in the claims. Specifically, claim 14 refers to the engagement region (44) of the devise interacting with a regulating element of a "cam shaft or motor element", neither of which were shown in the drawings. Figure 1 has been amended to show the location of a regulating element of a cam shaft, and the phrase "motor element" has been removed from the claim by this amendment. Accordingly, Applicants respectfully request that this objection be withdrawn.

In the Action, claims 2, 4 and 12-13 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Specifically, claim 2 was rejected because the phrase "a permanent magnet at least in sections" requires clarification. The words "at least in sections" have been deleted to make claim 2 more clear. Claim 4 was rejected only because it depends from claim 2. Claims 12 and 13 were rejected because it was unclear what sections of the housing were to be made of non-magnetic material. Claim 12 has been amended to clarify that the elongated piston is guided in a tubular guidance section of the housing, and claim 13 specifies that the tubular guidance

section is made of non-magnetic material. Accordingly, Applicants respectfully request that these §112 rejections be withdrawn.

In the Action, claims 2-4 and 14-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,983,847 (Miyoshi et al.) in view of U.S. Patent No. 4,470,030 (Myers). Applicants respectfully traverse this rejection.

The present invention relates to a regulating device for cam shaft regulation in an internal combustion engine. This device includes a movable actuator, a permanent magnet, and a coil device. The movable actuator has an engagement region on one end which is adapted to interact with a regulating element of a cam shaft. The coil device is stationary relative to the actuator, and while the coil device is in an inactive state the actuator is held in place by the permanent magnet. When a current is applied to the coil device, the actuator overcomes the retaining force of the permanent magnet and is released from the coil device in order to interact with an element of the cam shaft.

Miyoshi et al. disclose an electric valve drive device for an internal combustion engine which uses a voice coil motor. A main feature of the Miyoshi et al. invention is that it is not meant to work with a cam shaft to regulate valve timing. The actuator in Miyoshi et al. does not have an engagement region adapted to interact with a cam shaft element. Instead, the end of the actuator is the actual valve, and is positioned in the intake or exhaust port of the engine itself.

Miyoshi et al. uses a voice coil motor in which a permanent magnet and a moving coil are used to control the actuator. The coil is moved when magnetic flux is generated across the gap between the coil and the permanent magnet. The coil and the actuator are directly connected to each other and move together as a single unit. When the current is removed, a compression spring returns the actuator to its original position.

Miyoshi et al. does not disclose a system in which the actuator is released from the coil when a current is applied because the coil and the actuator are rigidly attached to each other. Furthermore, because the coil and actuator are directly connected to each other, the permanent magnet in Miyoshi et al. does not hold the actuator inside the coil when no current is applied. Miyoshi et al. also fail to disclose a system in which the permanent magnet exerts a retaining force on the actuator. Instead, the actuator in Miyoshi et al. is retained by the force of a compression spring.

Myers discloses a trip solenoid which includes a sectional permanent magnet, a stationary coil, and an actuator attached to an armature plate. In an inactive state, the armature plate is spaced apart from the magnet and is held in place by a retaining spring. When a current is applied to the coil, the armature plate is attracted to the magnet which causes the actuator to move. When the current is removed, the retaining spring returns the armature plate and actuator to its original position.

Like Miyoshi et al., Myers also fails to disclose a system in which the magnet retains the actuator in its inactive state, and instead uses a spring. Similarly, when a

current is applied the actuator does not overcome a retaining force provided by the magnet. Myers also does not disclose a system in which the actuator is released from the coil in an active state because Fig. 5 clearly shows that the actuator extends through the coil in both the active and inactive states.

Neither Miyoshi et al. nor Myers disclose a system in which the permanent magnet retains the actuator in proximity to the coil in an inactive state. Miyoshi et al. and Myers also do not disclose a system in which the actuator is released from the coil when activated and overcomes a retaining force from the permanent magnet. Therefore even if combined as suggested in the Action, Myers and Miyoshi et al. do not teach or suggest all of the claim limitations of claim 14. Accordingly, reconsideration and withdrawal of the §103(a) rejection of claim 14 is requested. Claims 2-4 and 15 all depend from claim 14 and should be similarly patentable.

Claims 12 and 13 were also rejected under 35 U.S.C. §103 as obvious in view of the prior combination and further in view of U.S. Patent 5,996,628 to Majmolhoda et al. Applicants respectfully traverse this rejection.

As noted above, Miyoshi et al. fails to disclose the claimed invention because the permanent magnet of Miyoshi et al. does not retain the actuator in proximity to the coil in an inactive state. Additionally, Miyoshi et al. fails to disclose a system in which the actuator is released from the coil when activated and overcomes a retaining force from the permanent magnet. Najmolhoda et al. fails to address these deficiencies in both

Miyoshi et al. and Myers for reasons noted in detail above. Accordingly, withdrawal of the Section 103 rejection of claims 12 and 13 is respectfully requested.

Applicants note with thanks the Examiner's finding that claims 5-11 include allowable subject matter. As these claims depend directly or indirectly from claim 14 which should now be allowable, these claims should also now be in condition for allowance.

If for any reason the Examiner believes that in interview, either telephonically or in person, would assist in the prosecution of the application, the Examiner is invited to contact the undersigned at the Examiner's convenience.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the present application, including claims 2-15, is in condition for allowance, and a Notice to that effect is respectfully solicited.

Respectfully submitted,

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IN THE DRAWINGS

Please replace page 1 of the drawings with the attached replacement sheet. In the replacement sheet, Fig. 1 has been amended to show the location of a cam shaft element which interacts with the engagement region of the actuator.